

TABLE H.5
IEUBK MODEL INPUT PARAMETERS
ROLLING KNOLLS LANDFILL SUPERFUND SITE

Scenario Timeframe : Future Development
 Medium : Soil and Groundwater
 Exposure Medium : Soil and Groundwater
 Exposure Point: Potentially Developable Area
 Receptor Population: Child Resident (1)

AIR PARAMETERS			
Parameter Description	Value	Units	Rationale/ Reference
Outdoor air concentraton	0.10	µg/m ³	USEPA 2007 (2)
Indoor air concentration	0.03	µg/m ³	USEPA 2007 (2)
Percent of outdoor air concentration	30	percent	USEPA 2007 (2)

Input for Different Age Groups						
Age (years)	Time Spent Outdoors (hours/day)		Ventilation Rate (m ³ /day)		Lung Absorption (percent)	
0 - 1	1	USEPA 2007 (1)	2	USEPA 2007 (1)	32	USEPA 2007 (2)
1 - 2	2	USEPA 2007 (1)	3	USEPA 2007 (1)	32	USEPA 2007 (2)
2 - 3	3	USEPA 2007 (1)	5	USEPA 2007 (1)	32	USEPA 2007 (2)
3 - 4	4	USEPA 2007 (1)	5	USEPA 2007 (1)	32	USEPA 2007 (2)
4 - 5	4	USEPA 2007 (1)	5	USEPA 2007 (1)	32	USEPA 2007 (2)
5 - 6	4	USEPA 2007 (1)	7	USEPA 2007 (1)	32	USEPA 2007 (2)
6 - 7	4	USEPA 2007 (1)	7	USEPA 2007 (1)	32	USEPA 2007 (2)

DIETARY PARAMETERS			
Parameter Description	Value	Units	Rationale/ Reference
Concentration			
home-grown fruits	0	µg Pb/g	USEPA 2007 (2)
home-grown vegetables	0	µg Pb/g	USEPA 2007 (2)
fish from fishing	0	µg Pb/g	USEPA 2007 (2)
game animals from hunting	0	µg Pb/g	USEPA 2007 (2)
Percent of food class:			
home-grown fruits	0	percent	USEPA 2007 (2)
home-grown vegetables	0	percent	USEPA 2007 (2)
fish from fishing	0	percent	USEPA 2007 (2)
game animals from hunting	0	percent	USEPA 2007 (2)

Input for Different Age Groups		
Age (years)	Dietary Lead Intake (µg/day)	
0 - 1	2.26	USEPA 2007 (2)
1 - 2	1.96	USEPA 2007 (2)
2 - 3	2.13	USEPA 2007 (2)
3 - 4	2.04	USEPA 2007 (2)
4 - 5	1.95	USEPA 2007 (2)
5 - 6	2.05	USEPA 2007 (2)
6 - 7	2.22	USEPA 2007 (2)

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DRINKING WATER PARAMETERS			
Parameter Description	Value	Units	Rationale/ Reference
Drinking water concentration	2.7	µg/L	Site-Specific (3)
Percent of total consumed as first draw	50	percent	USEPA 2007 (2)
Concentration of lead in first draw	4	µg/L	USEPA 2007 (2)
Concentration of lead in flushed water	1	µg/L	USEPA 2007 (2)
Percent of total consumed from fountains	15	percent	USEPA 2007 (2)
Concentration of lead in fountain water	10	µg/L	USEPA 2007 (2)

Input for Different Age Groups		
Age (years)	Water Consumption (L/day)	
0 - 1	0.20	USEPA 2007 (2)
1 - 2	0.50	USEPA 2007 (2)
2 - 3	0.52	USEPA 2007 (2)
3 - 4	0.53	USEPA 2007 (2)
4 - 5	0.55	USEPA 2007 (2)
5 - 6	0.58	USEPA 2007 (2)
6 - 7	0.59	USEPA 2007 (2)

SOIL/DUST PARAMETERS			
Parameter Description	Value	Units	Rationale/ Reference
Soil/dust ingestion weighting factor	45	percent	USEPA 2007 (2)
Outdoor soil lead concentration	2,070	µg/g	Site-Specific (4)
Indoor dust concentration	1,459	µg/g	USEPA 2007 (5)
Fraction of indoor dust lead attributable to soil	0.7	unitless	USEPA 2007 (2)
Ratio of dust to outdoor air lead concentrations	100	µg/g dust per µg/m ³	USEPA 2007 (2)

Input for Different Age Groups		
Age (years)	Amount of Soil/Dust Ingested Daily (g/day)	
0 - 1	0.085	USEPA 2007 (2)
1 - 2	0.135	USEPA 2007 (2)
2 - 3	0.135	USEPA 2007 (2)
3 - 4	0.135	USEPA 2007 (2)
4 - 5	0.100	USEPA 2007 (2)
5 - 6	0.090	USEPA 2007 (2)
6 - 7	0.085	USEPA 2007 (2)

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MATERNAL PARAMETERS			
Maternal-to-Newborn Lead Exposure	Value	Units	Rationale/ Reference
Mothers blood lead concentration at childbirth	1	µg/dL	USEPA 2007 (2)

Bioavailability Parameters			
Media Absorption Fractions	Value	Units	Reference/Rationale
Diet	50	percent	USEPA 2007 (2)
Drinking water	50	percent	USEPA 2007 (2)
Soil	30	percent	USEPA 2007 (2)
Dust	30	percent	USEPA 2007 (2)
Alternate source	0	percent	USEPA 2007 (2)
Fraction of total net absorption at low intake rate attributable to non-saturable (passive) processes	0.2	unitless	USEPA 2007 (2)
Half saturation level	100	µg/day	USEPA 2007 (2)

Plotting and Risk Estimation			
	Value	Units	Reference/Rationale
Geometric standard deviation (GSD) for blood lead	1.6	unitless	USEPA 2007 (2)
Blood lead level of concern	10	µg/dL	USEPA 2007 (2)
Computation Options			
Iteration time step for numerical integration	4	hours	USEPA 2007 (2)

Notes:

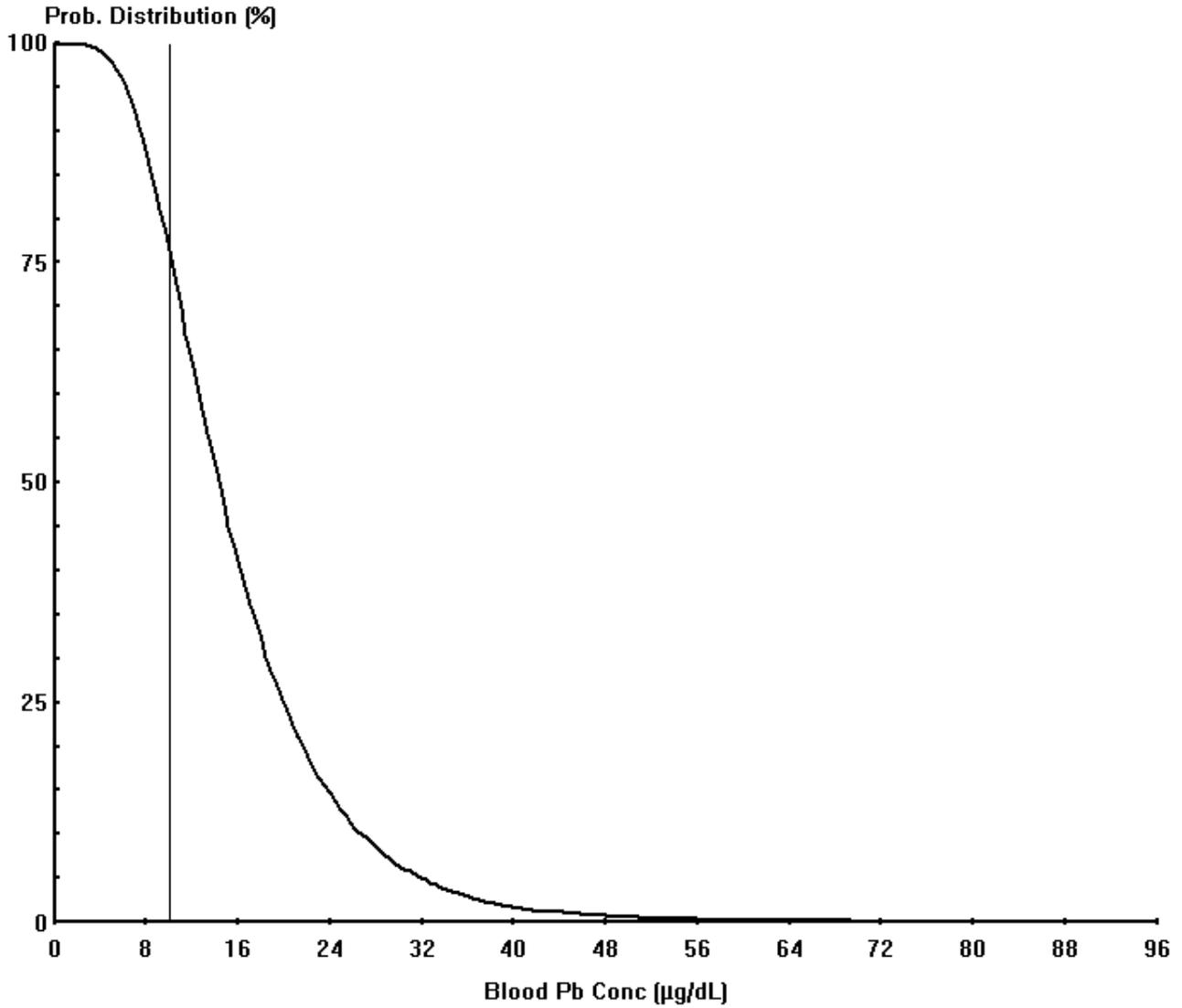
1. Child resident is a person less than 6 years of age.
2. Default value.
3. Arithmetic mean groundwater lead concentration used. Constant value assumed through childhood.
4. Arithmetic mean soil lead concentration used. Constant value assumed through childhood.
5. Average concentration based on multiple source analysis. Constant value assumed through childhood.

References:

United States Environmental Protection Agency. 2007. User's Guide for the Integrated Exposure Uptake Biokinetic Model for Lead in Children (IEUBK) Windows®

FIGURE H.1
IEUBK MODEL OUTPUT
ROLLING KNOLLS LANDFILL SUPERFUND SITE

Scenario Timeframe : Future Development
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Receptor Population: Child Resident



Cutoff = 10.000 µg/dl
Geo Mean = 15.063
GSD = 1.600
% Above = 80.828

Age Range = 0 to 84 months

Run Mode = Research